



Owner's Manual

USB ORB 2.2GB

- Installation Guide
- User's Guide
- Troubleshooting
- How to Get Help
- Warranty
- Registration



TABLE OF CONTENTS

SECTION 1 INSTALLATION GUIDE

Things to Consider	2
1.1 Introduction	3
1.2 System Requirements	3
1.3 Hardware and Tools for Installation	3
1.4 Package Contents	4
1.5 Installation Safety Precautions	4
1.6 Hardware Setup	4
1.7 PC Driver Installation	6
1.7.1 Windows 98 Utilities	7
1.8 Mac Driver Installation	8
1.8.1 ORB Tools for Mac	9
1.9 Connecting ORB to an ORB SCSI Chain	9

SECTION 2 USERS GUIDE

2.1 Operating your ORB Drive	11
2.2 Using ORB Disks	12
2.3 Accessing Your ORB Drive	14
2.4 Reassigning Drive Letters	14
2.5 Large Drive Support	15
2.6 Partitioning a Disk	15

SECTION 3 TROUBLESHOOTING17

SECTION 4 SPECIFICATIONS20

SECTION 5 CUSTOMER SUPPORT22

SECTION 6 WARRANTY23

SECTION 7 SOFTWARE LICENSE AGREEMENT24

SECTION 8 STANDARDS AND REGULATIONS26

THINGS TO CONSIDER:

Look through this Installation Guide. If you feel in any way unsure of performing this installation, then we strongly recommend contacting a qualified computer technician to install or assist in the installation.

This ORB Owner's Manual is designed to provide efficient instructions for safe installation of the ORB Drive. **WARNINGS** are clearly marked throughout the manual. Please read these **WARNINGS** carefully when installing and/or removing your ORB drive. Use of the practices and techniques described in this manual should help assure that your installation of the ORB drive is simple and safe.



SECTION 1 INSTALLATION GUIDE

WELCOME TO ORB!

The ORB USB Drive offers you everything that you want in a portable, removable disk drive – high capacity, easy installation and hot pluggable, at an affordable price that can be easily connected to your system using a USB interface.

ORB USB Drive is a SCSI Drive that connects to a USB port on your computer system through a USB to SCSI cable.

1.1 INTRODUCTION

This installation guide provides detailed instructions, and illustrations, as well as safety precautions that will help you to configure and install your ORB USB drive. It is recommended that you use this guide along with your computer's manual.

If you intend to connect the ORB SCSI drive to your computer system's SCSI interface, refer to SCSI ORB Owner's Manual. You can download this manual in PDF format from the Support Center on our web site at www.castlewood.com.

1.2 SYSTEM REQUIREMENTS

Hardware

PC – Intel Pentium 100, AMD K6, Cyrix MMX with a USB port.

Mac – iMac, new (Bondi-blue) Power Macintosh G3, G4+.

Operating Systems

PC – Windows 2000, Windows 98.

Mac – Mac OS 8.5.1 with Firmware update 1.1, USB update 1.1 or later.
Mac OS 8.6 and above

1.3 HARDWARE/TOOLS FOR INSTALLATION

A #0 Phillips screw driver is needed to change your ORB Drive's SCSI ID.

You may require tools if you need to install an add-on USB adapter card. In this case, follow the instructions provided by the vendor of the add-on card to perform this installation.

1.4 PACKAGE CONTENTS

The ORB USB Drive consists of:

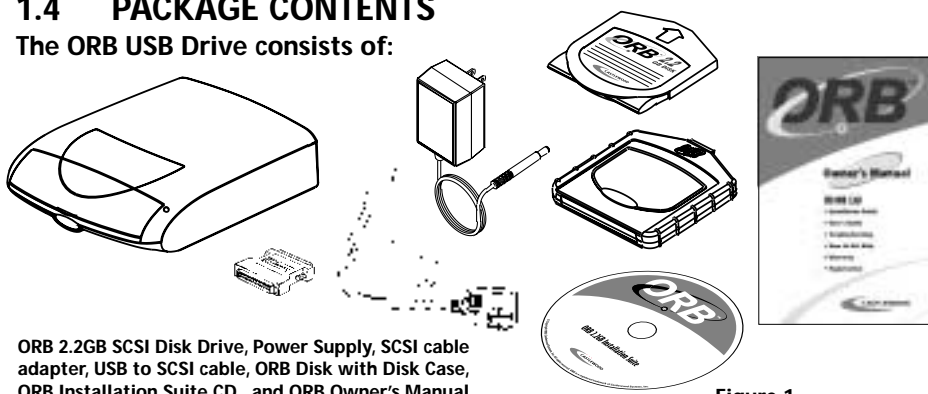


Figure 1

The ORB Installation Suite CD contains USB drivers for PC and Mac platforms.

Become familiar with your ORB Drive:

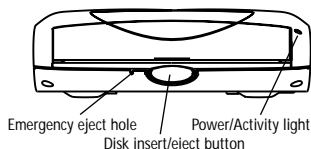


Figure 2
Front View

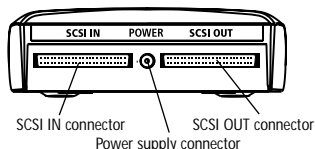


Figure 3
Rear View

1.5 INSTALLATION PRECAUTIONS

Be sure to read the following Installation Safety Instructions before moving on to the actual installation steps. Damage may occur to the drive and disk if these precautions are not followed. If for any reason you do not understand these instructions, please contact a qualified computer technician to install or assist in the installation.

- ✱ **Temperature Stabilization** - Before removing the drive from its protective plastic bag, ensure the drive has reached room temperature. This is accomplished by allowing the drive to sit in its protective plastic bag in the room environment for at least one hour.
- ✱ **Shock** - Dropping, jarring, or moving the drive while the disk is spinning can cause catastrophic damage. The drive should be placed on a flat, horizontal surface whenever an ORB disk is installed. The ORB disk should always be removed from the drive before the ORB Drive is moved.
- ✱ **Power** - Always attach cable(s) to the drive then the power supply. Then the USB connector can be attached to/detached from your computer system with drive power either on or off.
- ✱ **Magnetic Interference** - Do not place the drive and/or disk near a monitor or speaker as interference from such a device may affect the normal operation of the drive.

1.6 HARDWARE SETUP

In this section you will be physically connecting your ORB SCSI Drive through a USB to SCSI cable to your computer system.

1. Unpack your ORB Drive and accessories.

You should have: An ORB 2.2GB SCSI Disk Drive, Power Supply, DB25 to HD50 cable adapter, USB to SCSI cable, ORB Disk with Disk Case, ORB Installation Suite CD, and this Owner's Manual. (see Section 1.4 Package Contents – Figure 1 – page 3)

2. Connecting to an existing SCSI chain.

ORB USB Drive is an ORB SCSI Drive that connects to a USB port on your computer system through a USB to SCSI cable. If you want to daisy-chain ORB SCSI Drives to a PC, refer to Section 1.9, Connecting ORB Drive to an ORB SCSI chain, before proceeding further. Otherwise, go to the next step.

3. Assign a SCSI ID to your ORB Drive.

A SCSI ID is an integer, ranging from 0 to 7, each identifies a SCSI device on the same SCSI chain. ID 7 is used by the USB to SCSI cable.

You can find ORB Drive's ID switch on the bottom of the drive as shown in Figure 4. The available IDs for the ORB Drive are ID 0, 4, 5 and 6.

The switch shown in Figure 4 is set to ID 4. **If you are connecting this drive to a Mac, the drive has to be set to ID 0 only.**

You will need a #0 Philips screw driver to change the ID setting.

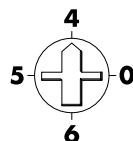


Figure 4

If the ORB SCSI Drive is the only SCSI device connected to the USB to SCSI cable, you can set the ID to any value. Otherwise, refer to section 1.9, Connecting ORB Drive to an ORB SCSI Chain, before proceeding further.

4. Connect the HD50 end of the SCSI cable adapter to the ORB Drive's SCSI IN connector (left connector when facing the rear of the drive).

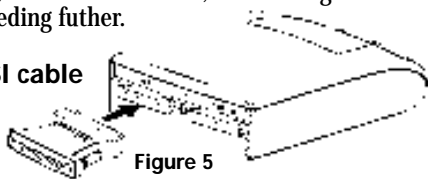


Figure 5

5. Connect the DB25 (male) end of the SCSI cable adapter to the DB25 (female) end of the USB to SCSI cable.

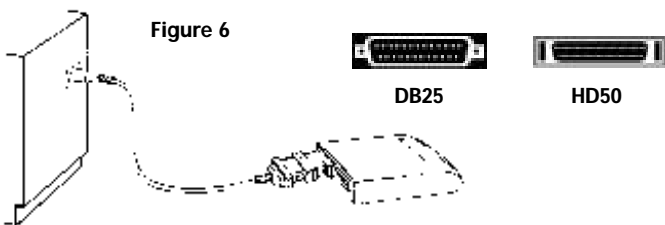


Figure 6

6. Connect the ORB Drive power supply.

First, attach the round power connector from the power supply to the ORB Drive (center, rear of the drive). Then plug the power supply into an AC outlet.

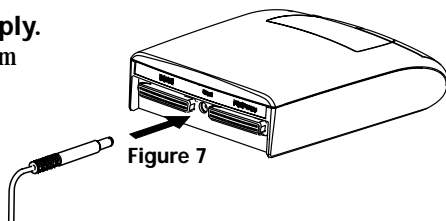


Figure 7



PROBLEM! If the Power/Activity light is not glowing green or does not light, refer to Section 3, Troubleshooting.



Caution! Power should not be applied to the ORB Drive until the SCSI to ORB Smart cable is attached to the drive. Afterwards, the USB connector can be attached to/detached from your computer system with Drive power either on or off.

7. Insert the ORB Disk supplied with your drive, into the drive.

Press the Insert/Eject button on the front of the drive. The drive door will open for approximately 5 seconds.

To insert the ORB disk, slide the disk all the way into your ORB Drive. Push in and then firmly press down on the disk until it snaps into place. You can refer to Section 2.2, Using ORB Disks, for further information about inserting disks.

Within a few seconds the door should close and the Power/Activity light should begin flashing amber.

Within approximately 15 seconds the Power/Activity light should stop blinking and will glow green. This indicates that the disk is mounted and your drive is ready.



PROBLEM!: The disk ejects (does not mount), refer to Section 3, Troubleshooting.

8. Connect the ORB Drive to the computer.

Connect the USB connector end of the USB to SCSI cable to an available USB port on your computer system. A USB port is labeled with the USB icon.



If you set up the ORB Drive on a PC, continue with Section 1.7. If the setup is on a Mac system, go to Section 1.8.

1.7 PC DRIVER INSTALLATION

The ORB USB driver has to be installed before Windows 98 is able to recognize and assign a driver letter to your ORB Drive.

You will see a "New Hardware Found" message right after the USB drive is connected to your system.

1. Insert the ORB Installation CD into your CD-ROM drive.
2. Click "Next" when Windows searches for the driver for eUSCSI Bridge Ver 1.11.

3. Choose the option to "Search for the best driver for your device" then click "Next".
4. Check only "Specify a location" then click "Browse".
5. In the browse window,
 - double-click on the CD-ROM drive icon
 - double-click on the PC folder
 - double-click on the Driver folder
 - then click OK.
6. Click "Next" when Windows searches for eUSB SCSI Adapter.
7. Make sure the location specified is the same as in Step 5 then click on OK.
8. After the installation is completed, you should see a new removable drive icon in My Computer.

You can also install the driver at a later time by

1. Close all open applications.
2. Insert the ORB Installation CD into your CD-ROM drive.
3. Run the installation by
 - double-click on My Computer on the Windows desktop
 - double-click on the CD-ROM drive icon
 - double-click on the PC folder
 - double-click on the file named Setup (Setup.exe).
4. To install your ORB USB driver, follow the instructions displayed.
5. After the installation is completed, you should see a new removable drive icon in My Computer.



PROBLEM! If you still see a "New Hardware Found" message after the computer is restarted, refer to Section 3, Troubleshooting.

CONGRATULATIONS! YOUR ORB DRIVE IS NOW READY TO USE.

1.7.1 WINDOWS 98 UTILITIES

You can utilize the following native Windows 98 utilities with your ORB USB drive.

Eject – You can eject an ORB disk by a right-click on the Removable Drive icon under My Computer or Windows Explorer, then choose Eject.

Partition – The ORB disk is shipped with a FAT16 extended partition. It can be re-partitioned with fdisk under DOS Command Prompt. You can get to DOS Command prompt on a Windows 98 System from Start/Programs/MS-DOS prompt. For help and information on fdisk, refer to Microsoft Windows 98 Users Manual.

Format – The disk can be formatted with Microsoft's format utility by right-click on the Removable Drive icon under My Computer or Windows Explorer, then choose

Format. For help and information on Format, refer to Microsoft Windows 98 Help menu by going to Start/Help, click on Index tab and type in **formatting** in the space provided.

ScanDisk – This Windows utility scans your ORB Disk(s) for bad blocks. Go to Start/Programs/Accessories/System Tools/ScanDisk to launch this program. For help and information on ScanDisk, refer to Microsoft Windows 98 Help menu by going to Start/Help, click on Index tab and type in **scandisk** in the space provided.

Backup – You can backup data to your ORB drive with Microsoft Backup. It can be accessed from Start/Programs/Accessories/System Tools/Backup. Once the application is launched, you can access its help from the Help menu.

1.8 MAC DRIVER AND SOFTWARE INSTALLATION

The ORB USB driver has to be installed before Mac OS is able to mount your ORB USB Drive. This will also install ORB Tools for Mac on your system.

Close all open applications and disable virus protection before proceeding further.

1. Insert the ORB Installation CD into your CD-ROM.
2. Launch the installation by
 - double-click on the CD-ROM icon
 - double-click on the MAC folder
 - double-click on the file named ORB Tools Installer.
3. To install your ORB USB driver, follow the instructions displayed.
4. After the driver installation is completed, your ORB USB Drive should appear as an ORB Drive icon on the desktop.



PROBLEM! If no drive icon appears, refer to Section 3, Troubleshooting.

5. The ORB disk is PC formatted, You can re-format it to Mac format through the OS or ORB Tools for Mac.

CONGRATULATIONS! YOUR ORB DRIVE IS NOW READY TO USE.

1.8.1 ORB Tools for Mac

ORB Tools for Mac is a suite of utilities included on the ORB Installation CD supplied with your new ORB Drive that expands its functionality.

Once the ORB Tools is properly installed, you can launch from its alias or the folder in the hard drive where it was installed.

The utilities provide the following functions:

Status – displays the SCSI bus the ORB drive is on and its SCSI ID

Mount / Unmount Volume – mount/unmount the drive on/from the Desktop

Eject Media – eject the disk from the drive

Initialize – Set up drive for use with Macintosh or DOS file systems. Create multiple partitions and format drive.

Verify – Check the media for error to find out if you should perform a low level format.

Update – Update the driver on media to the latest and greatest.

Spin Down Timer – Set your preference for spin down time.

Write Protect Drive – Prevent modification to media in the drive.

Drive Operating Mode – Set the drive on Write Verify mode for extra level of data protection or A/V Mode for A/V recording.

1.9 CONNECTING ORB DRIVE TO AN ORB SCSI CHAIN

If you want to daisy-chain ORB SCSI Drive then connect the chain to a PC via the USB to SCSI cable, you need to go through this section carefully. ***However, since a Mac only recognizes ORB Drives with ID 0, you can not connect more than one ORB Drive through a common USB to SCSI cable on the Mac platform.***



CAUTION: Castlewood only supports a daisy chain of ORB SCSI Drives through the USB to SCSI cable. Do not configure any other vendor's SCSI device in the SCSI chain and then connect the chain to the USB to SCSI cable.

1. Power OFF all the SCSI devices.



Warning! Always turn OFF power to protect yourself from injury and your equipment from damage.

2. Identify SCSI IDs of all ORB Drives on the same SCSI bus.

A SCSI ID is an integer, ranging from 0 to 7, each identifies a SCSI device on the same SCSI chain. ID 7 is used by the USB to SCSI cable.

Each device on the same SCSI chain must have a unique ID, otherwise your system will not work properly and data corruption may occur.

You can find ORB Drive's ID switch on the bottom of the drive as shown in Figure 4. The available IDs for the ORB Drive are ID 0, 4, 5 and 6.

3. Assign a unique SCSI ID to your ORB SCSI Drive.

You will need a #0 Philips screw driver to change the ID setting.

4. Connect the HD50 end of the SCSI cable adapter to one ORB Drive's SCSI IN connector (left connector when facing the rear of the drive).

Refer to Figure 5 in Section 1.6, Step 4.

5. Connect the DB25 (male) end of the SCSI cable adapter to the DB25 end of the USB to SCSI cable.

Refer to Figure 7 in Section 1.6, Step 5.

6. Attach another ORB SCSI Drive to your ORB Drive.

If you want to attach another ORB SCSI Drive, connect its cable from SCSI IN connector to the first ORB Drive's SCSI OUT connector (right connector when facing the rear of the drive).

7. Terminate the SCSI chain.

A SCSI chain has to be properly terminated to ensure data integrity.

The ORB SCSI Drive has built-in, automatic active termination. Therefore, you do not need to manually set its termination.

8. To complete installing your ORB SCSI Drive as a USB Drive, return to Section 1.6, Step 6.



CAUTION! Always power off your computer and all peripherals before reconfiguring the SCSI chain. Electrical power should be turned off before connecting, disconnecting any SCSI cables or changing SCSI ID; otherwise, your drive or computer equipment could be damaged.

SECTION 2 USER'S GUIDE

2.1 OPERATING YOUR ORB DRIVE

Now that you have successfully installed your ORB Drive, you will soon be able to make use of the wide range of features and applications that it offers:

- * **Important Record Storage** – If you need a place to keep special files (confidential information or any other valuable items like product plans and designs, personnel files, budgets, company directories, computerized checkbooks, and tax records), the ORB Disk is a perfect solution.
- * **Portable Information** – With your new ORB Drive, you have the ability to store vast amounts of information on a disk slightly larger than a 3 1/2-inch floppy. This means you can put an ORB Disk and its case and then in your pocket to take it wherever you go.
- * **Multimedia** – The ORB's high capacity make it the ideal storage device for CD-ROM, video, and digital images.
- * **Instant Hard Disk Upgrade** – The ORB Drive offers an easy way to add an extra 2.2 gigabytes of storage space to your system.
- * **Organization** – If you have files from many different types of sources and you want to organize them the ORB Disks allows you to group these files by storing different types of files on different disks.
- * **Hard Drive Back Up** – The ORB Drive presents a simple way to back up your hard drive. Just copy important files to the ORB disk, and you can access those files at any time.

2.2 USING ORB DISKS

*Disk Insertion Instructions

Push a disk straight into the ORB Drive with your finger using an “in and down” motion to ensure that the disk is seated.

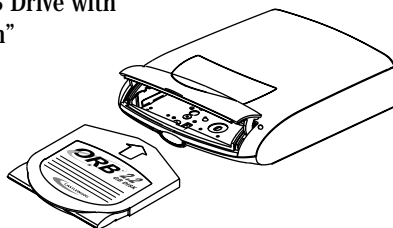


Figure 14
Disk insertion

*Disk Ejection Instructions

You can eject a disk using the operating system, recommended, or by pressing the Insert/Eject button on the front of the drive.

CAUTION: Do not try to remove disk by lifting up on the front edge of the disk while it is in drive.

CAUTION: Do not move or transport the drive with the disk installed. This can damage the heads and media. A disk must not be in the drive when the drive is moved or shipped.

From Windows Desktop

1. Close all open applications and files on the ORB Disk before ejecting the disk otherwise data could be corrupted.
2. From the Desktop, double click on My Computer.
3. Right click on ORB SCSI Drive Icon.
4. Select Eject.
5. Green LED will flash amber (Disk spin down and air purge cycle).
6. ORB Drive door will automatically open.
7. Disk will be ejected.
8. Remove ORB Disk.
9. Door will automatically close.
10. Place ORB Disk in protective ORB Disk case.

From Mac Desktop

1. Close all open applications and files on the ORB Disk before ejecting the disk otherwise data could be corrupted.
2. From the Desktop, highlight the ORB SCSI Drive Icon and hold the mouse.
3. Drag the icon and drop it in the Trash Icon.

4. Green LED will flash amber (Disk spin down and air purge cycle).
5. ORB Drive door will automatically open.
6. Disk will be ejected.
7. ORB Drive Icon should disappear from Desktop.
8. Remove ORB Disk.
9. Door will automatically close.
10. Place ORB Disk in protective ORB Disk case.

From Drive

It is recommended to eject by right-click context from Window's Desktop or dragging the ORB Drive Icon into Trash from Mac's Desktop as described above during routine operation.

1. Close all open applications and files on the ORB Disk before ejecting the disk otherwise data could be corrupted.
2. Press the Insert/Eject button on the front of the drive.
3. Green LED will flash amber (Disk spin down and air purge cycle).
4. ORB Drive door will automatically open.
5. Disk will be ejected.
6. ORB Drive Icon should disappear from Desktop if you are using a Mac.
7. Remove ORB Disk.
8. Door will automatically close.
9. Place ORB Disk in protective ORB Disk case.

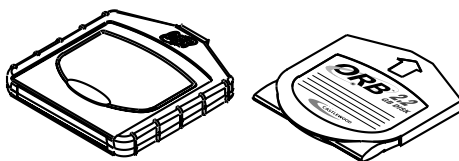


CAUTION: Do not leave an ORB Disk in the ejected position with the drive door resting on the disk.

*Using the ORB Disk Case

Your ORB Disk comes in a protective disk case. This case is provided to ensure that your ORB Disk has the maximum protection from ambient conditions and normal physical use. Place the ORB Disk into the ORB disk case when it is not in immediate use. This will maximize your disk life and minimize your risk of loss or damage.

Figure 15
Disk ORB Case and Disk



Warning about "foreign media damage"

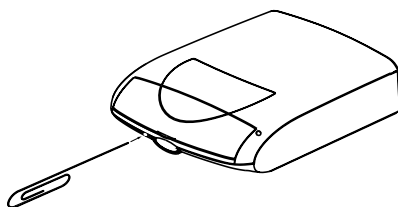
Do not attempt to insert any media other than ORB Disks into the ORB Drive. It is not compatible with any media other than an ORB Disk. Inserting any media other than ORB Disks will result in damage to your drive and will void any warranty for the product.

✱ Emergency Ejection Method

1. Shut down your computer system (turn power off).
2. Remove power from your ORB Drive by either unplugging the power supply or removing the power connector from the drive.
3. Wait 30 seconds.
4. Insert a paper clip into emergency eject hole.

CAUTION: Do not insert a paper clip into the emergency eject hole while there is power to your drive. This may result in damage to your drive and disk.

Figure 16
Emergency eject



2.3 ACCESSING YOUR ORB DRIVE

My Computer: Windows 98

1. From the Desktop place the cursor over My Computer and Double Click.
2. Identify the ORB Removable Drive and Double Click.

Explorer: Windows 98

1. From the Desktop click on the Start Button.
2. Select Programs.
3. Select Explorer.
4. Select My Computer.
5. Select the ORB Drive Icon from the drive hierarchy and Double Click.

Mac OS 8.5.1+

Identify the ORB Drive Icon on Desktop and Double Click.

2.4 REASSIGNING DRIVE LETTERS

Under Windows 98 you may be able to change the drive letter assigned to your ORB Drive.

You may want to change the drive letter for convenience, or because there was a change to existing drive letters when you installed your ORB Drive. Changes to existing drive letters may cause problems with applications installed on the drives with changed letters.

Installation Help Note 001, Drive Letter Assignment, covers in detail how drive letters are assigned and the ways available to reassign drive letters. This Help Note is

available on our web site at www.castlewood.com.

2.5 LARGE DRIVE SUPPORT

Windows Environment

Windows 98 and Windows 95 OSR2 or later support the use of partitions greater than 2 GB (gigabytes) in capacity with FAT32. The maximum supported partition size is 2 TB (terabytes). Large drive partition support can help you dramatically reduce the amount of wasted space on your computer's hard disk.

One should be aware that this FAT32 configured partition can only be recognized and accessed by Windows 98 and Windows 95 OSR2 or later. DOS, Retail Windows 95 (original Windows 95), and Windows NT 4.0 or earlier cannot access a FAT32 partition.

Mac Environment

Mac OS 8.1 and later supports Mac OS Extended File Format (HFS+). This large drive partition support can help you dramatically reduce the amount of wasted space on your ORB Disk.

One should be aware that this Mac OS Extended format can only be recognized and accessed by Mac OS 8.1 or later.

2.6 PARTITIONING A DISK

Your ORB Drive comes with a 2.2GB ORB Disk. The ORB Disk is a high quality and high capacity hard disk. If you purchased an ORB USB Drive, the ORB Disk is pre-formatted with one 2.16GB extended FAT16 partition. The ORB Drive and Disk partition behave like any Hard Disk Drive that you have on your system. The table below shows the format options that exist to you based on your operating system.

Partition Options Table

Operating System	FAT16	FAT32	NTFS	HPFS	HFS (Mac OS Standard)	HFS+ (Mac OS Extended)
DOS	2.16GB	NVO	NVO	NVO	NVO	NVO
Windows 3.1	2.16GB	NVO	NVO	NVO	NVO	NVO
Windows 95	2.16GB	2.2GB*	NVO	NVO	NVO	NVO
Windows 98	2.16GB	2.2GB	NVO	NVO	NVO	NVO
NT 4.0	2.16GB	NVO	2.2GB††	NVO	NVO	NVO
Windows 2000**	2.16GB	2.2GB	2.2GB††	NVO	NVO	NVO
OS/2	2.16GB	NVO	NVO	2.2GB	NVO	NVO
UNIX	2.16GB	NVO	NVO	NVO	NVO	NVO
Mac System 7.5.5+	1GB†	NVO	NVO	NVO	2.1GB	NVO
Mac OS 8.1+	1GB†	2.2GB†	NVO	NVO	2.1GB	2.1GB

Table 2

Note: 1 GB = 1 billion bytes = 1,000,000,000 bytes

Value = Maximum Partition size

NVO = Not Valid Option

* Windows 95 OSR2 or later

** Beta version

† MAC with PC exchange

†† In fixed drive mode

Re-Partitioning the ORB Disk:

Windows 98

Use DOS command to re-partition your ORB Disk. You will need to format the Disk either with DOS command or with Windows 98.

Mac System 8.5.1+

Use ORB Tools for Mac to partition the ORB Disks. Either ORB Tools or the native format utilities on the operating systems can be used to reformat the ORB Disks. You can format a DOS formatted disk to Mac format with ORB Tools for Mac.

SECTION 3 TROUBLESHOOTING

If you encounter a problem while installing or using your ORB Drive, check this Section for help.

If the information presented in this document does not help you resolve the problem, visit the Support Center on our web site: www.castlewood.com.

LED Indicator Definitions

Green: Power is present and drive has passed self-test.

Amber: Data is being written or read on the ORB Disk.

Red: Error has occurred while checking the drive.

Upon Power On:

1. **Steady Green** – Drive ready to accept disk.
2. **Flashing Amber and then steady Green** – Disk is in and drive ready for use.
3. **Flashing amber, motor spins up and then spins down, disk ejects and LED turns steady Green** – Disk failed to spin up.
4. **Flashing Red** – Drive Failure:
 - One flash - ROM failure
 - Two flashes - RAM failure
 - Three flashes - DRAM failure
 - Four flashes - Internal Bus Failure
 - Five flashes - Interface failure

During Operation:

1. **Steady Green** – Drive ready to accept an ORB Disk
 - ORB Disk is loaded.
2. **Flashing Amber** – Disk loading or unloading.
 - Disk in use.
3. **Flashing Red** – Possible disk error detected during spin up. Your disk will either be write-protected or ejected to safeguard the data.
 - One flash to four flashes – Note the number of red flashes and contact technical support.

Green light (LED) does not illuminate or light.	<ul style="list-style-type: none"> • Make sure the power supply is plugged in • Make sure power connector to drive is securely inserted in drive.
Red light (LED) remains in the "on" state.	<ul style="list-style-type: none"> • Drive is defective - return to place of purchase.
The ORB Drive does not "come ready". (Green light (LED) on the ORB Drive does not come ready when disk is inserted.)	<ul style="list-style-type: none"> • A) Make sure the power cable connection to the ORB SCSI drive is secure. • B) Make sure the disk is inserted and seated properly.
An ORB Disk will not stay inserted.	<ul style="list-style-type: none"> • Make sure that you are properly inserting the disk. Refer to section 2.2, Using ORB Disks. • Try inserting a different disk. If it mounts properly, there may be a problem with the original disk.
After driver is installed and computer restarted, Windows 98 founds new hardware.	<p>This might happen the very first time the computer is restarted after USB driver is installed.</p> <ul style="list-style-type: none"> • A) Check specify location and click on Next. • B) Click on Browse and double-click on your boot drive (usually drive C). • C) Double-click on Windows folder. • D) Double-click on Inf folder. • E) Double-click on Other folder and click OK. • F) Repeat Step A to E if another New Hardware Found message comes up.
After the ORB Drive is installed, the computer hangs during startup or the ORB Drive does not appear on the Desktop	<p>This could be caused by several possible problems related to an installation problem. The following entries will help you isolate the device that causes the problem.</p> <ul style="list-style-type: none"> • A) Make sure that the cables are properly connected and both ends of the cable connectors are seated all the way and are straight to the connector. • B) Make sure that each device has a unique SCSI ID and the chain is properly terminated. Refer to Section 1.9, Connecting ORB Drive to a SCSI Chain. • C) Restart your computer. If the problem still exists, continue with the following steps. • E) Connect other SCSI devices back to the SCSI chain, one device at a time. You may need to refer to their manuals for instructions on installation. • F) If the last external device does not have active termination or if you are not sure, connect ORB Drive as the last device on the SCSI chain for proper termination.

Data transfer problems or drive operation is erratic.

- **A) Make sure that the cable are properly connected. Refer to Section 1.9, Connecting ORB Drive to a SCSI Chain.**
 - **B) Make sure each device on the SCSI chain has a unique SCSI ID.**
 - **C) Make sure the SCSI chain is actively terminated. If the last external device does not have active termination or if you are not sure, connect ORB Drive as the last device on the SCSI chain for proper termination.**
 - **D) Use only high quality cables.**
 - **E) Use the shortest length of cables possible.**
-

For the latest help information:

Refer to the Support Center on our web site at www.castlewood.com.

SECTION 4

SPECIFICATIONS – USB CONFIGURATIONS

Performance

Average Seek Time	10ms read/write 12 ms
Data Transfer Rate (Drive)	12.2 MB/sec maximum
USB Data Transfer Rate (Interface)	1.0 MB/sec maximum
Rotation Speed	5400 rpm
Head	MR (Magneto-Resistive)
CPU	25 MIPS DSP
Start/Stop Times	6 sec spin-up, 10 sec read, 15 sec write/6 sec stop
Long Format Time	11 Minutes
Short Format Time	5 seconds

Reliability and Warranty

Reliability:	Labyrinth Sealed Door with Auto Closure and Patented enclosure environmental controls
MTBF	300,000 hours
Service Life	5 Years
Bit Error Rate	1 in 10 ¹²
Disk (estimated shelf life)	20 Years
Drive and Disk Warranty	1 Year Limited

General Information

Interface	USB Type A
Disk Storage capacity	2.2 GB
Operating System Compatibility	Windows 98, Mac OS 8.5.1+
Hardware Compatibility	Mac: iMac, new (Bondi-blue) Power Macintosh G3, and G4 PC: Intel Pentium, AMD K6, Cyrix MMX with a USB port
Power	5V (±5%), 1.5 amp (peak) start-up .75 amp continuous read/write .75 amp max seek, .2 amp standby mode
Power Management	Via software (Mac only)
Dimensions	6.5" X 1.5" X 5.25"
Weight	1.19 Lb / 538.7 gms
Write Protection	Via Software (Mac only)
Acoustical Noise	Less than 36 dB

Operating Conditions

Temperature	
Operating	10°C to 46°C
Storage	-40°C to +60°C
Shipping	-40°C to +60°C

Relative Humidity (non-condensing)

Operating	10% to 80%
Non-Operating	10% to 90%

Vibration

Operational	.03 inches p-p @ 5-10Hz, .5g p-p @ 10-300Hz, .2g p-p @ 300-500Hz
Non-Operational	.04 inches p-p @ 5-10 Hz, 4g p-p @ 10-500Hz

Shock @ 11ms duration 1/2 Sine wave

Operational	3g
Non-Operational	80g

Altitude

Operating	10,000 ft
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SPECIFICATIONS – SCSI CONFIGURATIONS

Performance

Average Seek Time	10ms read/write 12 ms
Data Transfer Rate	12.2 MB/sec maximum
Burst Transfer Rate	20 MB/sec maximum
Rotation Speed	5400 rpm
Head	MR (Magneto-Resistive)
CPU	25 MIPS DSP
Start/Stop Times	6 sec spin-up, 10 sec read, 15 sec write/6 sec stop
Long Format Time	9 Minutes
Short Format Time	Less than one second

Reliability and Warranty

Reliability:	Labyrinth Sealed Door with Auto Closure and Patented enclosure environmental controls
MTBF	300,000 hours
Service Life	5 Years
Bit Error Rate	1 in 10 ¹²
Disk (estimated shelf life)	20 Years
Drive and Disk Warranty	1 Year Limited

General Information

Interface	50-pin High Density narrow
Disk Storage capacity	2.2 GB
Operating System Compatibility	Windows 98, 95, 3.1x, NT4.0 (SP4)+, MS-DOS 5.0+, , Mac OS 7.6.1+
Hardware Compatibility	Mac: Power PC with PCI or above, G3 and G4 PC: Intel Pentium, AMD K6, Cyrix MMX
Power	5V (±5%), 1.5 amp (peak) start-up .75 amp continuous read/write .75 amp max seek, .2 amp standby mode
Power Management	Via software, with idle and standby mode
Dimensions	6.5" X 1.5" X 5.25"
Weight	1.19 Lb / 538.7 gms
Write Protection	Via Software
Acoustical Noise	Less than 36 dB

Operating Conditions

Temperature	
Operating	10°C to 46°C
Storage	-40°C to +60°C
Shipping	-40°C to +60°C

Relative Humidity (non-condensing)

Operating	10% to 80%
Non-Operating	10% to 90%

Vibration

Operational	.03 inches p-p @ 5-10Hz, .5g p-p @ 10-300Hz, .2g p-p @ 300-500Hz
Non-Operational	.04 inches p-p @ 5-10 Hz, 4g p-p @ 10-500Hz

Shock @ 11ms duration 1/2 Sine wave

Operational	3g
Non-Operational	80g

Altitude

Operating	10,000 ft
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All specifications are subject to change. Actual performance is dependent on your system configuration.

SECTION 5 CUSTOMER SUPPORT

Additional ORB Help Sources

Customer Support	Phone
US and Canada	1 866 874 7878
Germany (D)	008000 ORB INFO (008000 672 4636)
Great Britain (UK)	008000 ORB INFO (008000 672 4636)
France (F)	008000 ORB INFO (008000 672 4636)
Italy(I)	008000 ORB INFO (008000 672 4636)
Spain (E)	008000 ORB INFO (008000 672 4636)
Switzerland (CH)	008000 ORB INFO (008000 672 4636)
Other European countries	+49 (0)7000 ORB INFO (+49 (0)7000 672 4636)
Countries outside North America and Europe	See web site
Castlewood Systems, Inc., corporate	1 408 956 2500
Email	help@castlewood.com
Web site	www.castlewood.com

SECTION 6 WARRANTY

Warranty. Castlewood Systems, Inc. ("Castlewood") warrants the ORB Drives (the "Drives") solely to the purchaser ("Purchaser") against defects in workmanship and materials for a period of one (1) year from the date of purchase. Castlewood warrants the ORB disks (the "Disks") solely to the Purchaser against defects in workmanship and materials for a period of one (1) year from the date of purchase (each a "Warranty Period"). The Drives and the Disks shall be collectively and individually referred to as "Product". All warranty claims must be requested of Castlewood prior to the expiration of the applicable Warranty Period. Purchaser may not transfer this warranty. Purchaser's sole remedy, and Castlewood's sole liability for a covered warranty defect shall be for Castlewood, at its sole discretion, to either repair or replace the defective Product at no charge, or to refund the purchase price for the affected Product. These warranties are void if the applicable Product has been altered in any way or damaged by accident, misuse, or abuse, including, but not limited to, the use of unauthorized third party software or repairs, power surges, excessive heat or humidity. Castlewood warranty obligations shall not be enlarged or diminished by Castlewood's provision of technical advice to Purchaser.

Exclusions. THE PRECEDING WARRANTY DOES NOT APPLY TO (I) ANY SOFTWARE COMPONENTS OF THE PRODUCT; (II) ANY THIRD PARTY SOFTWARE DISTRIBUTED ON OR WITH THE PRODUCT; (III) ANY EXPENDABLE COMPONENTS INCLUDING, BUT NOT LIMITED TO, FUSES, BULBS, AND CLEANING ACCESSORIES; AND (IV) ANY PRODUCTS NOT MANUFACTURED BY OR FOR CASTLEWOOD (THE "EXCLUDED ITEMS"). THE EXCLUDED ITEMS ARE LICENSED TO PURCHASER ON AN AS IS BASIS.

Disclaimer of Warranties. EXCEPT FOR THE EXPRESS WARRANTIES CONTAINED HEREIN, CASTLEWOOD DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT OR THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION. THE REMEDIES SET FORTH HEREIN SHALL BE THE SOLE AND EXCLUSIVE REMEDIES OF PURCHASER WITH RESPECT TO ANY DEFECTIVE PRODUCT. SOME JURISDICTIONS DO NOT PERMIT THE PRECEDING EXCLUSION OF IMPLIED WARRANTIES FOR CERTAIN CONSUMERS SO SOME OF THE ABOVE EXCLUSIONS OR LIMITATIONS MAY NOT APPLY TO PURCHASER.

RMA Procedure. If Purchaser discovers a defect in a Product during the applicable Warranty Period, then Purchaser should contact Castlewood for a Return Materials Authorization (RMA) number before shipping the Product, freight and insurance prepaid, to Castlewood's designated repair facility. Purchaser should have the part number, serial number, date of purchase, and the suspected problem ready when contacting Castlewood to obtain an RMA. Before shipping any Product to Castlewood, Purchaser shall remove any removable storage media, and all programs, data files and other data from any applicable storage media. Castlewood accepts no responsibility or obligation to return any such materials that are shipped to Castlewood. If a Product returned under warranty is found not to be defective, then Castlewood shall dispose of the Product per Purchaser's instructions after receiving full payment from Purchaser for Castlewood's inspection of the Product at Castlewood's then current rates for such services.

Limitation of Liability. IN NO EVENT SHALL CASTLEWOOD BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES THAT PURCHASER MAY SUFFER DIRECTLY OR INDIRECTLY FROM THE PURCHASE USE OF THE PRODUCT, INCLUDING, WITHOUT LIMITATION, FOR THE LOSS OF USE OR LOSS OF DATA, FILES OR PROGRAMS STORED ON THE PRODUCT. CASTLEWOOD'S MAXIMUM LIABILITY FOR ANY CLAIM BY PURCHASER ARISING OUT OF PURCHASER'S PURCHASE AND USE OF THE PRODUCT SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE APPLICABLE PRODUCT. Some states do not allow the exclusion of incidental, punitive or consequential damages, so the above limitation may not apply to Purchaser.

SECTION 7 SOFTWARE LICENSE AGREEMENT

CASTLEWOOD END USER LICENSE AGREEMENT

NOTICE TO END USER: CAREFULLY READ THE FOLLOWING LEGAL AGREEMENT (THE "AGREEMENT"). USE OF THE SOFTWARE PROVIDED WITH THIS AGREEMENT CONSTITUTES YOUR ACCEPTANCE OF THESE TERMS. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, PROMPTLY RETURN THE SOFTWARE AND THE ACCOMPANYING ITEMS (INCLUDING WRITTEN MATERIALS AND CONTAINERS) TO THE LOCATION WHERE YOU OBTAINED THEM FOR A FULL REFUND.

License Grant. Castlewood Systems, Inc. ("Castlewood") grants to You (either as an individual or entity) a personal, and non-exclusive right to use the copy of the object code version of the software embedded in, or bundled with, the ORB Disks and ORB Drives provided with this license (the "Software") [solely as installed in the Product]. The ORB Drives and the ORB Disks shall be collectively and individually referred to as the "Product". The term of this Agreement will be for the duration of Castlewood's copyright in the Software. You agree that You may not copy any written materials accompanying the Products and/or the Software. You may make one (1) copy of the Software, in object code form, solely for back-up or archival purposes. You may not rent or lease your rights in the Software in any form. Notwithstanding the previous sentence, You may assign Your rights under this Agreement only to a third party who previously agrees in writing to be bound by this Agreement and provided that You transfer all copies of the Products, Software, and related documentation to the third party or destroy any copies not transferred. Except as set forth above, You may not assign Your rights under this Agreement.

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or to refund the purchase price for the affected Product. These warranties are void if the applicable Product has been altered in any way or damaged by accident, misuse, or abuse, including, but not limited to, the use of unauthorized third party software or repairs, power surges, excessive heat or humidity. Castlewood warranty obligations shall not be enlarged or diminished by Castlewood's provision of technical advice to Purchaser.

Exclusions. THE PRECEDING WARRANTY DOES NOT APPLY TO (I) ANY SOFTWARE COMPONENTS OF THE PRODUCT; (II) ANY THIRD PARTY SOFTWARE DISTRIBUTED ON OR WITH THE PRODUCT; (III) ANY EXPENDABLE COMPONENTS INCLUDING, BUT NOT LIMITED TO, FUSES, BULBS, AND CLEANING ACCESSORIES; AND (IV) ANY PRODUCTS NOT MANUFACTURED BY OR FOR CASTLEWOOD (THE "EXCLUDED ITEMS"). THE EXCLUDED ITEMS ARE LICENSED TO PURCHASER ON AN AS IS BASIS.

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Severability. In the event of invalidity of any provision of this Agreement, the parties agree that such invalidity shall not affect the validity of the remaining portions of this Agreement. Export. You agree that You will not export or re-export the Products or the Software without the appropriate United States or foreign government licenses.

Taxes. You agree to be responsible for the payment of any taxes, other than Castlewood's income taxes, resulting from this Agreement.

Governing Law. This Agreement will be governed by the laws of the State of California as they are applied to agreements between California residents entered into and to be performed entirely within California. The United Nations Convention on Contracts for the International Sale of Goods is specifically disclaimed.

Entire Agreement. This is the entire agreement between You and Castlewood which supercedes any prior agreement, whether written or oral, relating to the subject matter of this Agreement.

SECTION 8 STANDARDS AND REGULATIONS

The Castlewood ORB2II00 satisfies the following standards and regulations:

- 1) UL/CSA: – This product is certified and listed with UL/CSA, and meets safety compliance in both U.S.A. and Canada.
- 2) CE Mark (EN 60950), TUV Rheinland Bauart: Safety and Evaluation to International Standard for European Directives.
- 3) CB Report: Based on IEC 950, Safety of Information Technology Equipment. Certifies our product is recognized by more than 30 countries.
- 4) EMC Test Mark (EMC directive 89/336/EEC): Certifies our product complies with EMC directive.

FCC Warnings

This equipment generates and uses radio frequency energy, and may cause interference to radio and television reception if not installed and used in strict accordance with the instructions in this manual.

It has been type-tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, try to correct the interference by one or more of the following measures:

- 1) Move the equipment away from the receiver.
- 2) Plug the equipment into a different outlet so that equipment and receiver are on different branch circuits.
- 3) Combination of both options 1 and 2 above.

You may find the FCC booklet How to Identify and Resolve Radio TV Interference Problems helpful. This booklet is available from the United States Government printing office, Washington, D.C., 20402, stock number 004-000-00345-4. Castlewood is not responsible for any radio or television interference caused by unauthorized modifications to the drive.

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Patents:

The ORB 2.2 GB Drive and ORB Disk are protected by numerous patents which have been applied for with the U.S. Patent Office.

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Customer Support USA & Canada

Phone: 1-866-874-7878

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France (F), Italy (I), Spain (E),
Switzerland (CH):**

008000 ORB INFO (008000 672 4636)

Other European countries:

+49 (0)7000 ORB INFO (+49 (0)7000 672 4636)

Countries outside N. America & Europe:

See web site

Email: help@castlewood.com